A comparison of decision-making by “expert” and “novice” nurses in the clinical setting, monitoring patient haemodynamic status post Abdominal Aortic Aneurysm surgery

Kerry Hoffman, RN.

Bachelor of Science, Graduate Diploma (Education),

Diploma of Health Science (Nursing), Master of Nursing.

Submitted in fulfillment of the requirements for the degree of Doctor of Philosophy

University of Technology, Sydney

2007

CERTIFICATE

I certify that this thesis has not already been submitted for any degree and is not being submitted as part of the candidature for any other degree.

I also certify that the thesis has been written by me and that any help I have received in preparing this thesis, and all sources used, have been acknowledged in this thesis.

Signature of Candidate

Preface

This study arose out of a continuing interest in clinical education and the education of nurses in general. During time spent teaching clinically and in educating undergraduate nursing students, I have had a continuing interest in how nurses make decisions and what can be done to help improve nurses' decision-making, both in the clinical arena and in the area of undergraduate studies. The Problem Based Learning (PBL) in which I have been most often involved, is believed to develop important and transferable skills such as critical thinking and decision-making. However, this has seldom been evaluated and more can be done to improve the delivery of learning materials aimed at improving these important cognitive skills. A starting point is to begin to understand how novice and expert nurses use cognitive strategies during decision-making and how these differ. New graduate nurses are increasingly entering nursing in areas such as critical care and it is especially important to understand nurses' decision-making in this area.

Acknowledgements

I would like to express my sincere thanks to Professor Christine Duffield and Professor Leanne Aitken for their support through this challenging and at times very difficult journey. Their help and advice have been invaluable. I would also like to express my thanks to Professor Judith O'Donoghue, who worked with me during the first two years of this project. Her help and support were invaluable as well. I would also like to thank all the academic staff at UTS, who gave feedback during presentations during the course of this study and helped me navigate my way through an often very confusing journey. Lastly I would like to thank my family for their support.

Table of contents

Index of Tables

Index of Figures

Index of Graphs

Executive Summary

Effective high-quality decision-making is important in nursing to ensure that nurses' decisions positively affect patient care. This is particularly important in critically ill patients such as those being managed and monitored in Intensive Care Units (ICU). Increasing nursing shortages worldwide are leading to greater demands for new graduate nurses to enter directly into areas such as ICU, and the education of graduates needs to prepare them for the demands of this area, particularly in relation to the development of cognitive skills such as decision-making. Examination of the cognitive processes of nurses as they decide on care for patients in ICU can help in not only understanding how nurses make decisions about care, but can also lead to improvements in educational methods to develop such skills. Comparing the decision-making skills of novice and expert nurses can help illuminate the differences between these two groups and lead to methods to best assist novice nurses towards expertise.

Much of our reasoning is invisible and examination of it requires methods that can illuminate our thinking. The information-processing framework seeks to explain the unseen processes as they occur in the mind and envisages a model of the mind as a processor. The think aloud (TA) method of data collection and the corresponding verbal protocol analysis from this theoretical framework were chosen for this study and allow for in-depth, rich descriptions of a participant's cognitive processing as s/he reasons about care. Collection of such data in the natural setting can expand the knowledge of cognitive processing in decision-making and the real world of practice was used for this purpose.

Eight ICU nurses, four novice and four expert, comprised the sample. The nurses thought aloud (TA) for two hours while caring for patients who had undergone an elective Abdominal Aortic Aneurysm (AAA) repair. The patients were all cared for within the first 24 hours post-operatively. The participants were subsequently interviewed as soon as the transcripts of the data were available after the TA session. Transcripts were analysed using Problem Behaviour Graphs (PBG) and content analysis, and the problem

space identified by describing the tasks attended, cues gathered and information sources used. The cognitive operators and processes used were also identified.

There were differences in both cognitive operators and processes used by novice and expert participants. Expert participants, in contrast with some previous studies, collected a greater range of cues than did novice participants and had an extensive repertoire of known cues, which they were able to relate together more often than were novice participants. The difference in novice and expert nurses' decision-making may be as much due to the way expert nurses put pieces of information together as it is to how much information they have. This study was completed in the real world of practice. Expert participants appeared to be anticipating problems and collecting cues that may indicate these problems. Expert participants also used the cognitive operators "match" and "predict" more often than novice participants did and appeared to match current patient situations to previous patients and experience. Expert participants used more forward reasoning in hypothetico-deductive reasoning, possibly as they could anticipate problems, whereas novice participants used more backward reasoning in hypothetico-deductive reasoning, working back from problems they identified. Novice and expert participants used if/then statements and novice participants reported they had been taught some of these by more experienced nurses. This type of reasoning in decision-making, although mentioned in the nursing literature, has not been identified as a process in nursing studies.

Understanding how novice and expert nurses' reasoning during decision-making differs can be used to further develop undergraduate education programmes. It can also help those who mentor novice nurses better understand and model decision-making. Adoption of teaching and learning methods within Problem Based Learning (PBL) programmes, such as concept maps to plan care, may help students and novice nurses better understand how to gather and relate cues and information to plan care.